ECHO
586 / Robin Pfister

The Information Systems Division

Goals, Objectives, Benefits

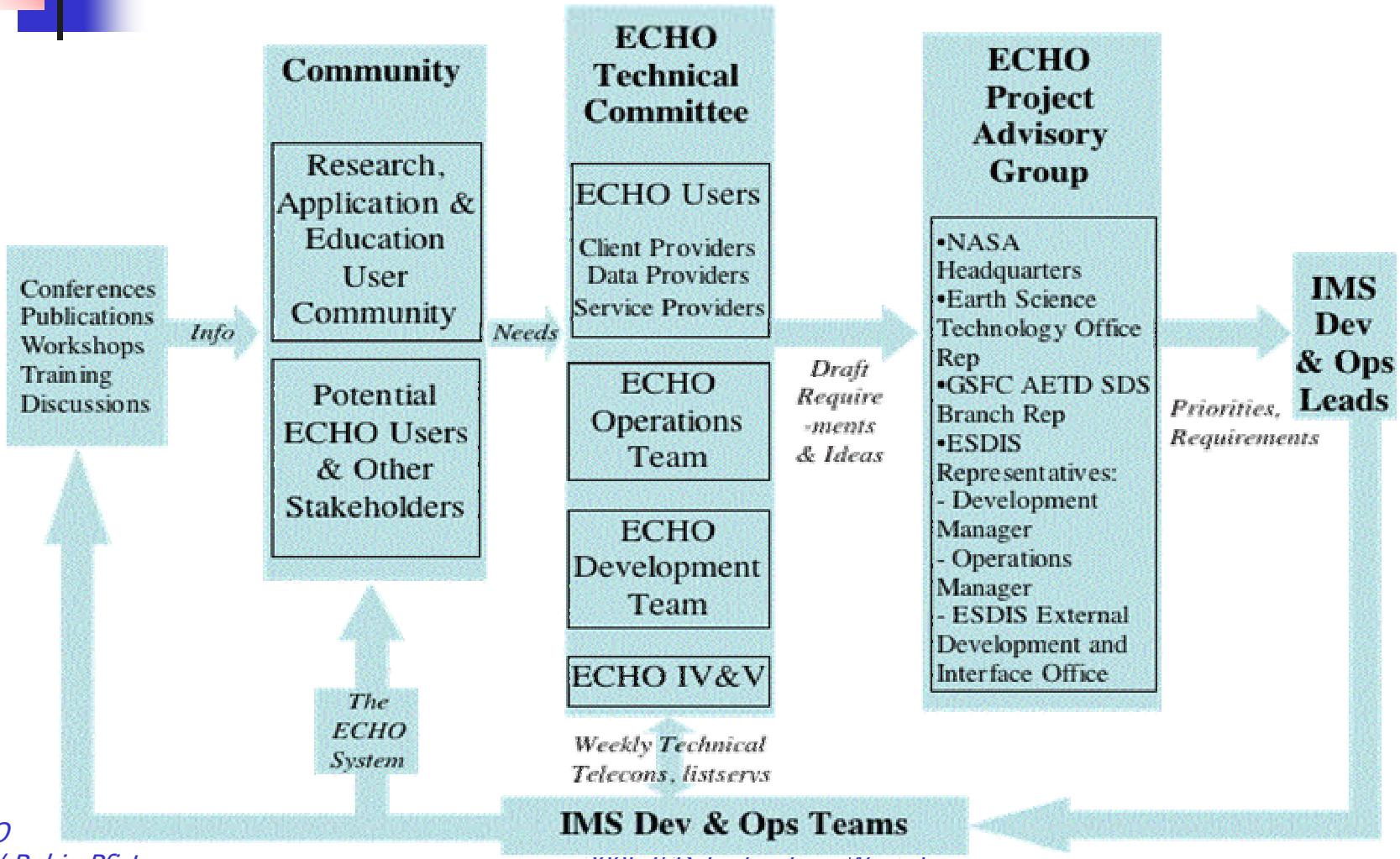
- Interoperability middleware solution enabling a marketplace of resource offerings
  - Open, XML-based APIs
  - Supports net-centric architectures and solutions
  - Set of Interoperable registries for inventory-level (metadata & browse images) and services
  - Provides user accounts and common infrastructure for the registries
  - Built upon a layered architecture with extensible infrastructure for supporting community unique protocols
  - Available as Open Source for re-use in other domains or applications
- To enable sharing and brokering of inventory-level resources (data, services, tools) among a federated community. Leverage work/resources of others
  - Anyone can contribute
  - Anyone can build a tailored view of the holdings to serve their specific community

Approach

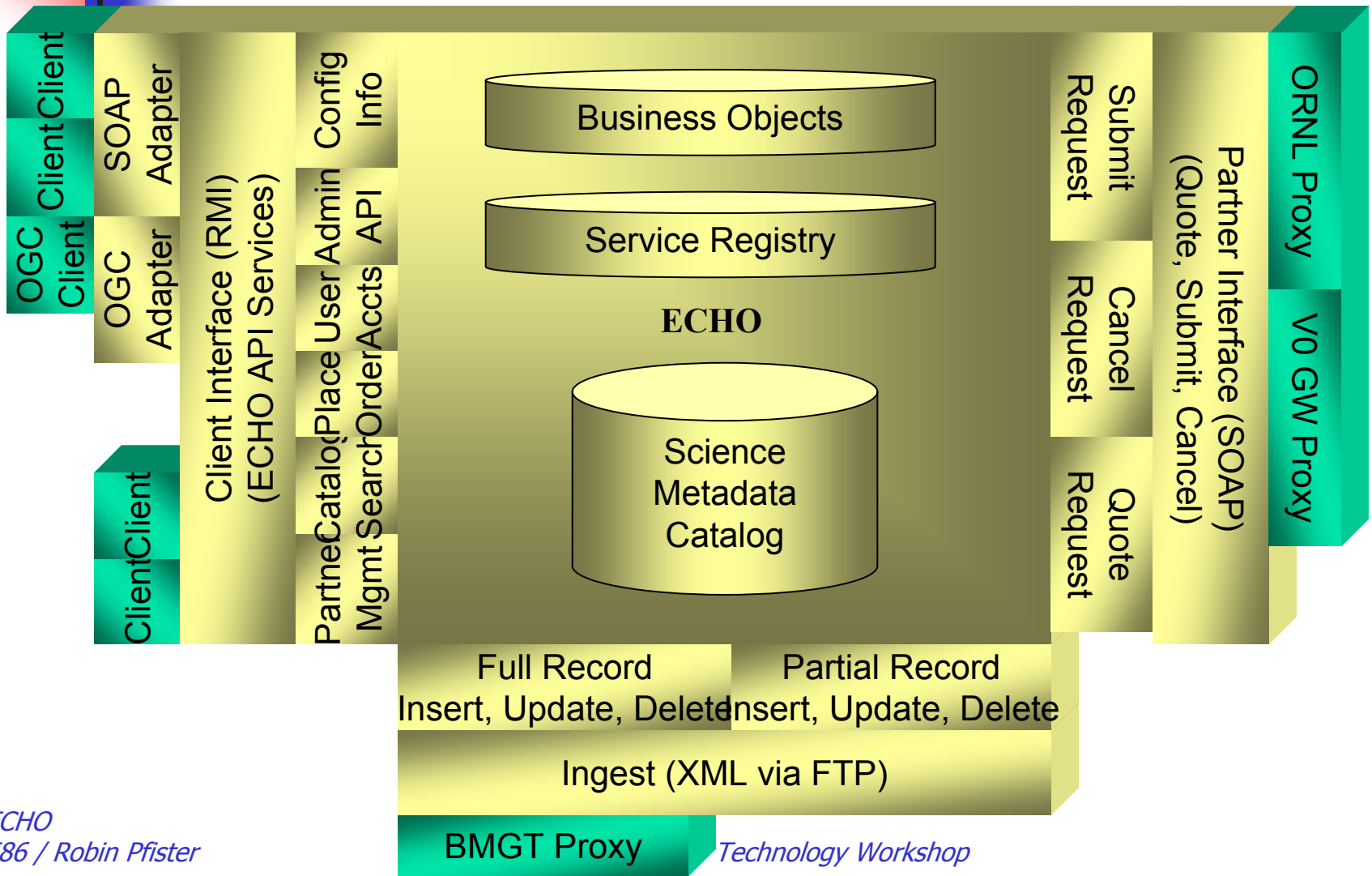
Includes approach, first level technical details, design, how it was tested, etc. If relevant, the process and method of doing technology can be shared.

- 1998 Study team initiated to look at community needs,market analysis, architecture analysis
- Initiated processes to involve stakeholders at various levels to ensure community needs are met
- Iterative development cycle
- Layered Architecture supports standards and protocol adaptors as appropriate and can be built/contributed by anyone. E.g.
  - ECS (complete)
  - OGC (in progress)
  - FGDC/NSDI
  - GCMD

Approach: Stakeholder Engagement



Approach: Layered Architecture

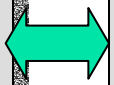


Approach

Data Registry

Representing data resources through metadata

- Publish Capability
  - Supports Collection, Granules and Browse publication
  - Product Specific Attributes extend the standard data model
- Discovery Capability
  - Collection/Dataset
  - Granule/Inventory
  - Based on Z39.50 Standard
  - Full Results Management
- Access Capability
  - Online Access
  - Legacy Order Mechanisms
  - Access Controls
    - Visibility of data resources
    - Access to data resources
- Metadata Subscriptions



Service Registry

Service offerings leveraging Web Service Standards

- Publish Capability
  - Advertisements
  - Service Interfaces
  - Service Implementations
  - Service GUIs
  - Linkage to Data Registry
- Discovery Capability
  - UDDI Standard Based
  - Data Registry View
    - ***What services are appropriate for this collection/granules?***
- Future
  - Service Brokering
  - Access Controls

Results, Status, Next Steps

- Data Partners:
  - 5 Operational Data Providers
  - 3 Development/Test
  - Over 40 Million data granules and over 6 Million Browse Images available
- Client Partners:
  - 2 Operational
  - 9 Development/Test

Results, Status, Next Steps

- Finding additional partners for Earth science domain implementation
  - Earth Science Information Partner (ESIP) Federation
  - Interagency Participation
  - International Participation
- Finding potential Re-Users
  - Space Science (LWS, Virtual Observatories)
  - Other non-science applications

Results, Status, Next Steps

- Load-balanced redundant back-up facility
- Service Brokering
- Asynchronous Searching
- Reference client
- Event Subscriptions
- Orchestration/Service Chaining
- Interagency and International Interoperability